

Title (en)

Non-volatile semiconductor memory device, electronic card using the same and electronic apparatus

Title (de)

Nichtflüchtige Halbleiterspeicheranordnung, diese verwendende elektronische Karte und elektronische Vorrichtung

Title (fr)

Dispositif de mémoire rémanente, carte électronique utilisant un tel dispositif et appareil électronique

Publication

EP 1469480 B1 20090805 (EN)

Application

EP 04008974 A 20040415

Priority

JP 2003114762 A 20030418

Abstract (en)

[origin: EP1469480A2] Disclosed is a non-volatile semiconductor memory device comprising a plurality of non-volatile semiconductor memory cells (1a, 1b), an interface (6, 7, 9) making data exchange with an external device to write/read data with respect to the non-volatile semiconductor memory cells, and a control circuit (2a, 2b, 3a, 3b, 4a, 4b, 5a, 5b) for controlling the non-volatile semiconductor memory cells, wherein the interface and the control circuit include a first read mode initialized via a first bootstrap to read data from the non-volatile semiconductor memory cells for continuously outputting (N + M)-byte (N is the n-th power of 2, n is positive integers) data via the interface, and a second read mode initialized via a second bootstrap to read data from the non-volatile semiconductor memory cells for continuously outputting K-byte (K is the k-th power of 2, k is positive integers) data via the interface.

IPC 8 full level

G06F 12/16 (2006.01); **G11C 16/26** (2006.01); **G06F 3/06** (2006.01); **G06F 3/08** (2006.01); **G06F 12/00** (2006.01); **G06F 12/06** (2006.01); **G06K 17/00** (2006.01); **G06K 19/07** (2006.01); **G11C 7/10** (2006.01); **G11C 16/06** (2006.01); **G11C 16/10** (2006.01); **G11C 17/00** (2006.01); **H01L 21/8247** (2006.01); **H01L 27/10** (2006.01); **H01L 27/115** (2006.01); **H01L 29/788** (2006.01); **H01L 29/792** (2006.01); **G11C 16/32** (2006.01)

CPC (source: EP KR US)

G06K 19/07732 (2013.01 - EP KR US); **G11C 7/1045** (2013.01 - EP KR US); **G11C 16/0483** (2013.01 - KR); **G11C 16/10** (2013.01 - KR); **G11C 16/26** (2013.01 - EP KR US); **G11C 16/32** (2013.01 - KR); **G11C 16/32** (2013.01 - EP US)

Cited by

EP2158564A4; WO2007136704A3; US7855927B2; US7558131B2

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 1469480 A2 20041020; **EP 1469480 A3 20070404**; **EP 1469480 B1 20090805**; CN 100530413 C 20090819; CN 1538449 A 20041020; DE 602004022353 D1 20090917; JP 2004319048 A 20041111; JP 4314057 B2 20090812; KR 100599905 B1 20060719; KR 20040090713 A 20041026; TW 200425147 A 20041116; TW I237270 B 20050801; US 2004257874 A1 20041223; US 2006077712 A1 20060413; US 6990018 B2 20060124; US 7394704 B2 20080701

DOCDB simple family (application)

EP 04008974 A 20040415; CN 200410032925 A 20040416; DE 602004022353 T 20040415; JP 2003114762 A 20030418; KR 20040025773 A 20040414; TW 93110558 A 20040415; US 28950905 A 20051130; US 82373704 A 20040414